

11900473 P.O. Box 747  
Falls Church, Virginia 22040-0747  
Phone: (703) 205-8000  
Fax: (703) 205-8050  
(703) 698-8590 (GIV)

Birch, Stewart, Kolasch & Birch, LLP

# Fax

**To:** Examiner AZAD **From:** Mark E. Olds  
**Fax:** 703 746 5728 **Date:** September 18, 2002  
**Phone:** **Pages:** 7 (including cover sheet)  
**Your Ref.:** 09/530,719 **Our Ref.:** 2565-0198P  
**Re:** **CC:**

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**The attached pages are  
proposed changes and are  
not intended for entry into  
the present application.**

**BIRCH, STEWART, KOLASCH & BIRCH, LLP**

INTELLECTUAL PROPERTY LAW  
8110 GATEHOUSE ROAD  
SUITE 500 EAST  
FALLS CHURCH, VA 22042-1210  
U S A  
(703) 205-8000

FAX: (703) 205-8050  
(703) 698-8590 (G IV)

e-mail: [mailroom@bskb.com](mailto:mailroom@bskb.com)  
web: <http://www.bskb.com>

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TERRELL C. BIRCH  
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ROBERT J. KENNEY  
JOHN W. BAILEY  
MARK J. NUEL, Ph.D.  
JAMES T. ELLER, JR.  
D. RICHARD ANDERSON  
THOMAS M. SMALL\*

OF COUNSEL:  
HERBERT M. BIRCH (1905-1996)  
BERNARD L. SWEENEY\*  
ELLIOT A. GOLDBERG\*  
WILLIAM L. GATES\*  
EDWARD H. VALANCE  
RUPERT J. BRADY (RET.)\*  
F. PRINCE BUTLER  
FRED S. WISENHUNT (RET.)  
JAMES W. HELLWEGE  
QUENTIN R. "RICK" CORRIE  
ROBERT F. GNUSE  
ROBERT A. SELDON\*  
JOHN A. SCILLIER\*

\*ADMITTED TO A BAR OTHER THAN VA.

SCOTT L. LOWE  
PAUL C. LEWIS  
RICHARD GALLAGHER  
JAYNE M. SAYDAH\*  
MARYANNE ARMSTRONG, Ph.D.  
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KALPANA REDDY  
MARK E. OLDS  
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CATHERINE M. VOISINET\*  
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J. ALISON GRABELL\*  
T. BENJAMIN SCHROEDER, Ph.D.  
PERCY L. SQUARE  
PHILIP K. YU\*

REG. PATENT AGENTS:  
FREDERICK R. HANDREN  
MAKI HATSUMI  
CRAIG A. McROBBIE  
GARTH M. DAHLEN, Ph.D.  
ROBERT E. GOOZNER, Ph.D.  
KRISTI L. RUPERT, Ph.D.  
MATTHEW T. SHANLEY  
SUSAN W. GORMAN, Ph.D.  
ROBERT W. DOWNS  
CHAD J. BILLINGS  
CHRISTINE V. CASTILLO  
CARL T. THOMSEN  
SAM BHATTACHARYA

Via Facsimile (703) 746-5728

Examiner A. Azad  
United States Patent and Trademark Office  
Art Unit: 2614

September 18, 2002

Re: **PROPOSED CLAIM AMENDMENTS AND NEW FIG.**  
Appln. No. 09/530,719      Docket No. 2565-0198P

Dear Examiner Tran:

Applicant's representative proposes to discuss the following items relevant to the prosecution of the above-identified Application.

- Proposed claim amendments to claims 16 and 18.
- Proposed new claims and new Fig. 8

Upon receipt of and review of this letter and proposed amendments the Examiner is requested to contact the undersigned at 703-208-4033.

Respectfully submitted,

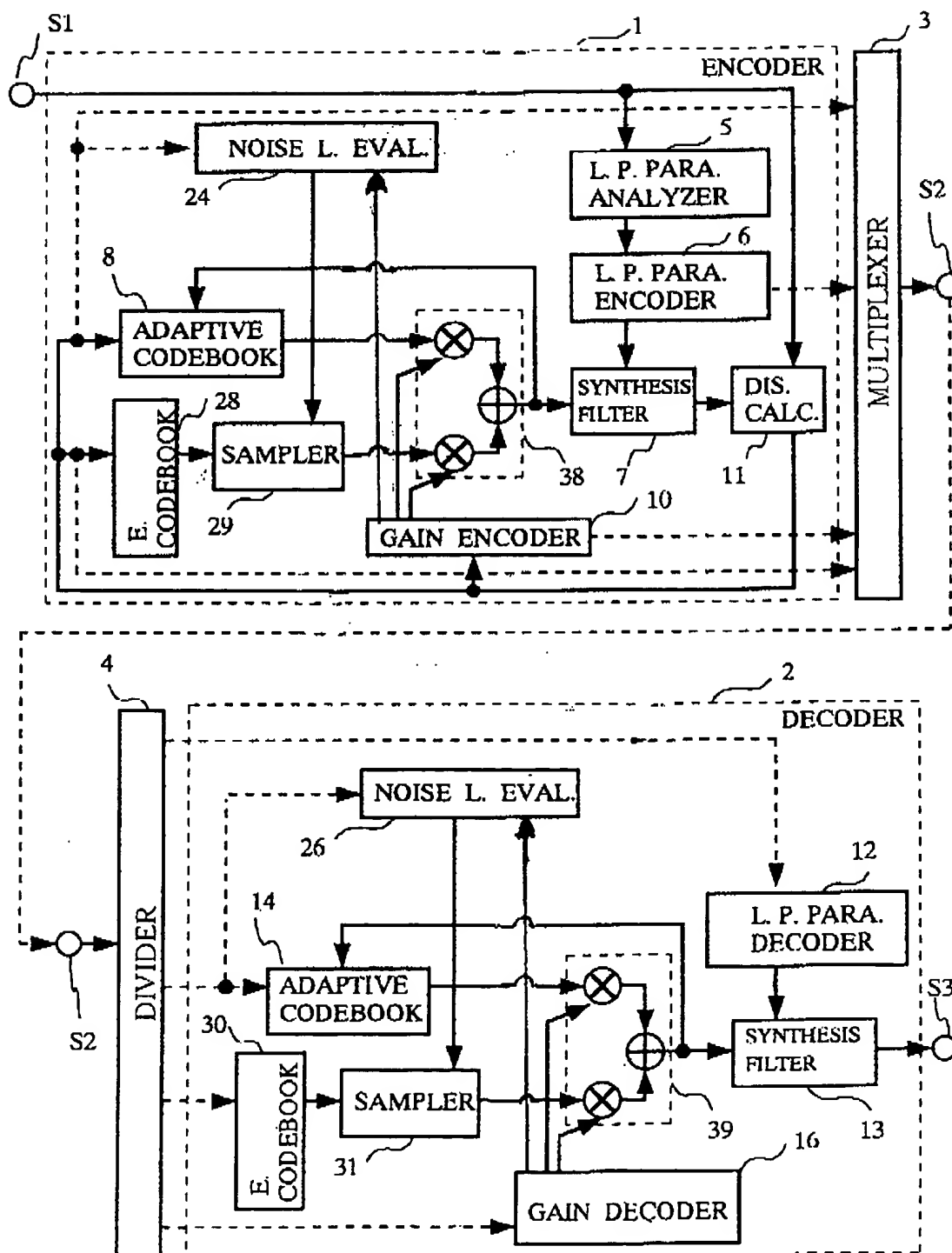
BIRCH, STEWART, KOLASCH & BIRCH, LLP

By: 

Mark E. Olds, Reg. No. 46,507  
P.O. Box 747  
(703) 208-4033  
Falls Church, VA 22040-0747

PROPOSED

Fig.8



PROPOSED

# PROPOSED

## Proposed Claim Amendments

16. A speech decoding method according to code-excited linear prediction (CELP) comprising:

evaluating a noise level of a speech in a concerning decoding period by using a code or decoding result based on the coded linear predictive parameter and [of] at least one of spectrum information, power information, and pitch information; and

changing a noise level of time series vectors output from an excitation codebook based on an evaluation result.

18. A speech decoding apparatus according to code-excited linear prediction (CELP) comprising:

a noise level evaluator for evaluating a noise level of a speech in a concerning decoding period by using a code or decoding result based on the coded linear predictive parameter and [of] at least one of spectrum information, power information, and pitch information; and

a noise level controller for changing a noise level of time series vectors output from an excitation codebook based on an evaluation result of the noise level evaluator.

# PROPOSED

# PROPOSED

## Proposed Additional Claims

19. A speech decoding apparatus according to code-excited linear prediction (CELP) wherein the speech decoding apparatus receives a coded speech including a gain code and synthesizes a speech, the speech decoding apparatus comprising:

- a gain decoder for inputting the gain code and for decoding a gain of a speech in a concerning decoding period based on the gain code input;

- a noise level evaluator for evaluating a noise level of the speech in the concerning decoding period by using the gain decoded by the gain decoder; and

- a noise level controller for changing a noise level of time series vectors output from an excitation codebook based on an evaluation result of the noise level evaluator.

20. A speech decoding apparatus according to code-excited linear prediction (CELP), wherein the speech decoding apparatus receives a coded speech including a linear prediction parameter code, an adaptive code, an excitation code, and a gain code and synthesizes an speech, the speech decoding apparatus comprising:

- an adaptive codebook, which stores an old excitation signal, for inputting the adaptive code and for outputting a time series vector corresponding to the old excitation signal based on the adaptive code input;

- an excitation codebook, which stores a plurality of time series vectors corresponding to a plurality of predetermined excitation signals, for inputting the excitation code and for outputting a time series vector corresponding to an excitation signal based on the excitation code input;

- a gain decoder for inputting the gain code and decoding a gain of a speech in a concerning decoding period from the gain code input;

- a noise level evaluator for inputting the gain decoded by the gain decoder and for evaluating a noise level of the speech in the concerning decoding period by using the gain input;

- a noise level controller for inputting an evaluation result of the noise level evaluator and the time series vector output from the excitation codebook and for changing a noise level of time series vector output from the excitation codebook based on the evaluation result of the noise level

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evaluator;

a weighting-adder for inputting the time series vector output from the adaptive codebook and the time series vector output from the excitation codebook and the gain decoded by the gain decoder, for weighting the time series vector output from the adaptive codebook and the time series vector output from the excitation codebook by using the gain, for adding a time series vector weighted by using the gain and a time series vector weighted by using the gain, and for outputting an addition result,

a linear prediction parameter decoder for inputting the linear prediction parameter code and for decoding and outputting a linear prediction parameter from the linear prediction parameter code input; and

a synthesis filter for inputting the linear prediction parameter output from the linear prediction parameter decoder and the addition result output from the weighting-adder and for synthesizing the speech using the linear prediction parameter and the addition result.

21. A speech decoding method according to code-excited linear prediction (CELP) wherein the speech decoding method receives a coded speech including a gain code and synthesizes a speech, the speech decoding method comprising:

inputting the gain code and decoding a gain of a speech in a concerning decoding period from the gain code;

evaluating a noise level of the speech in the concerning decoding period by using the gain decoded; and

changing a noise level of time series vectors output from an excitation codebook based on an evaluation result.

22. A speech decoding method according to code-excited linear prediction (CELP), for decoding a coded speech including a linear prediction parameter code, an adaptive code, an excitation code, and a gain code and synthesizing a speech, the speech decoding method comprising:

inputting the adaptive code to an adaptive codebook, which stores an old excitation signal, and outputting, from the adaptive codebook, a time series vector corresponding to the old excitation signal based on the adaptive code input;

inputting the excitation code to an excitation codebook, which stores

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a plurality of time series vectors corresponding to a plurality of predetermined excitation signals, and outputting, from excitation codebook, a time series vector corresponding to an excitation signal based on the excitation code input;

inputting the gain code and decoding a gain of a speech in a concerning decoding period from the gain code input;

inputting the gain decoded and evaluating a noise level of the speech in the concerning decoding period by using the gain input;

inputting an evaluation result and time series vector output from the excitation codebook, and changing a noise level of time series vector output from the excitation codebook based on the evaluation result;

inputting the time series vector output from the adaptive codebook and the time series vector output from the excitation codebook and the gain decoded, weighting the time series vector output from the adaptive codebook and the time series vector output from the excitation codebook by using the gain, adding a time series vector weighted by using the gain and a time series vector weighted by using the gain, and outputting an addition result,

inputting the linear prediction parameter code, and decoding and outputting a linear prediction parameter from the linear prediction parameter code input; and

inputting the linear prediction parameter output and the addition result output and synthesizing the speech using the linear prediction parameter and the addition result.

# PROPOSED